

Application Serial No. 10/020,732
Amendment and Response dated December 17, 2003
Response to Office Action dated July 1, 2003

Remarks

Reconsideration of this application is requested. The claims presented for reconsideration are claims 1-44.

Independent claims 1, 31 and 44 have been amended. The amendments merely clarify the steps of the claimed processes. No new element or new matter has been added. In particular, the language of the claims is consistent with the description of the invention as described in detail in the specification beginning at page 15, line 9, and continuing through page 16, line 6, as well as at the paragraph bridging pages 17 and 18.

I. Information Disclosure Statement is Resubmitted Herewith

The Examiner has indicated that the Information Disclosure Statement filed on February 27, 2003 cannot be found, and has requested a duplicate of the submission. Accordingly, Applicants have provided herewith a copy of the previously submitted Information Disclosure Statement.

II. Rejection Of Claims Under 35 U.S.C. § 102(B) Should be Removed, Since Mulvaney Does Not Provide Means to Address Dew Point Control.

Claims 1, 17-22, 29, 31-34 and 36-43 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,744, 680 (Mulvaney). This rejection is traversed, and reconsideration is requested.

This invention is directed to a problem of mud formation in product effluent lines of oxygenate to olefins processes. As described in greater detail at pages 14 -16 of the specification, the problem of catalyst fouling, or mud formation, is somewhat unique to the oxygenate to olefins process. In fact, it is applicants themselves who have discovered the problem. Applicants have likewise found that such a problem can be prevented by controlling the temperature of the effluent product stream around the stream's dew point temperature to minimize formation of the mud. That is, the temperature is controlled by removing heat from the effluent stream while maintaining the effluent stream above the dew point of the gas phase of the effluent stream. Then, the effluent stream is washed at a temperature below the dew point of the gas phase in order to remove solid particles in the effluent stream that cause the mud formation

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problem. Thus, according to the invention, the effluent stream is kept at a temperature above the dew point prior to washing with the wash medium, which minimizes condensation of the gas phase components and reduces or eliminates deposition of solid material on various effluent contacting surfaces before entering the wash system.

Mulvaney discloses an oxygenate to olefins reaction process that is typical of conventional oxygenate to olefins systems. In the Mulvaney process, the olefin product effluent is cooled prior to sending the effluent to a water scrubber. As the Examiner has pointed out in the sentence bridging pages 2 and 3 of the Office Action, Mulvaney provides no indication that the effluent is condensed prior to entering the water scrubber. That in itself is precisely the problem addressed by this invention. That is, Mulvaney fails to recognize any problem with mud formation, and there is no enabling disclosure within Mulvaney that would indicate that a mud formation problem exists or could be avoided. Thus, there is no teaching in Mulvaney, either explicitly or implicitly, which would suggest removing heat from the effluent stream while maintaining the effluent stream above the dew point of the gas phase, then washing the effluent stream at a temperature below the dew point to remove the solid particles. That teaching is only found in Applicant's disclosure. Accordingly, Mulvaney neither discloses nor suggests Applicants' claimed invention.

III. No Combination of Cited References Addresses or Solves Mud Formation Problems In Oxygenate To Olefins Reaction Systems.

A. Mulvaney Alone Does Not Suggest Applicants' Claimed Invention.

Claims 2-16 and 23-28 stand rejected under 35 U.S.C. § 103(a) as being obvious over Mulvaney. This rejection is likewise traversed.

In making this rejection of claims based on obviousness, the Examiner has again stated that "[t]here is no indication that the effluent is condensed prior to the condensing step thereby indicating that the temperature of the effluent is maintained above its dew point prior to washing." It is further stated that because the "effluent is comprised of similar components as compared to the claimed effluent, the relationship between the aqueous and non-aqueous dew points for the disclosed effluent would be the same" as before. This, however, is faulty logic.

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Whether the effluent described in the claims is of similar composition as that of the effluent disclosed in Mulvaney has no bearing on the fact that Mulvaney simply does not disclose any specific temperatures regarding the cooling of the effluent prior to washing in the water scrubber. Therefore, there is no way to know whether the Mulvaney process cools the effluent below the dew point level. To imply that controlling the temperature of the effluent based on the dew point temperature is but an obvious extension of Mulvaney quite simply has no basis. That teaching can only be found in Applicants' specification. As the Examiner well knows, an applicant's description of his own invention cannot be used against him for determination of obviousness. Accordingly, this rejection is in error, and should be removed.

B. Mulvaney In View Of Miller Also Fails To Suggest Applicants Claimed Invention.

Claims 30 and 35 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Mulvaney in view of U.S. Patent No. 6,403,854 (Miller). This rejection is also traversed.

In rejecting claims 30 and 35, the Examiner indicated that Mulvaney does not disclose the use of a quench tower to wash the effluent. Miller was, therefore, cited for disclosing the use of a quench tower in an oxygenate to olefins conversion system.

Although Applicants agree that Miller discloses the general use of a quench tower, the disclosure of a quench tower by Miller is irrelevant, since neither Mulvaney nor Miller provide any disclosure regarding controlling the temperature of the olefin product effluent stream so as to maintain the effluent stream above its dew point, and then using a wash medium to drop the temperature below the dew point. Accordingly, the combination of Mulvaney and Miller does not suggest Applicants' claimed invention, and this rejection of claims should be removed.

C. The Combination of Mulvaney and Pennington Also Fail to Address Dew Point Control to Solve Mud Formation Problems.

Claim 44 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Mulvaney in view of U.S. Patent No. 4,338,475 (Pennington). This rejection is also traversed.

Pennington has been cited in combination with Mulvaney on the basis that Mulvaney does not disclose the use of a cyclone separator and that Pennington does. Pennington, however, is also fundamentally void of any teaching with regard to control of effluent temperature of an

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oxygenate to olefins product effluent. In fact, Pennington makes no description of condensing product effluent to remove catalyst fines. Therefore, Pennington combined with Mulvaney also fails to suggest Applicants' claimed invention. Accordingly, this rejection should also be removed.


Having demonstrated that none of the cited references taken either alone or in combination describes or suggests Applicants claimed invention, this application is in condition for allowance. An early Notice of Allowance is, therefore, earnestly solicited.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1712 (Docket #2001B094US).

Respectfully submitted,

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Date


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